

Serial No. 10/757,475
Amendment dated March 22, 2006
Reply to Office Action of December 29, 2005

Docket No. YHK-0130

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-20. (Canceled.)

21. (Currently Amended) A plasma display apparatus comprising:

a scan electrode and a sustain electrode formed on a first substrate;

an address electrode formed on a second substrate;

a plurality of barrier ribs provided between the first and second substrate; and

a cell being defined by the scan, sustain and address electrodes, and the plurality of barrier ribs,

wherein the plasma display apparatus is configured to provide at least one signal to at least one of the scan electrode, the sustain electrode or the address electrode, and the at least one signal includes

an initialing pulse, which is provided to said scan electrode during an initialization period,

a scanning pulse, which is provided to said scan electrode during an address period,

a first sustaining pulse, which is provided to said scan electrode during a sustain period, and

a second sustaining pulse, which is provided to said sustain electrode during the sustain period; ~~and, wherein~~

at least one prescribed pulse of a prescribed waveform shape, ~~which is~~ provided to said scan electrode ~~between~~ after said initialing pulse and ~~before~~ said scanning pulse.

22. (Previously Presented) The plasma display apparatus as claimed in claim 21, wherein said initialization period includes a set-up period in which said initialing pulse changes to a second voltage after said initialing pulse has changed to a first voltage, wherein said second voltage is higher than said first voltage.

23. (Previously Presented) The plasma display apparatus as claimed in claim 22, wherein said first voltage is substantially equal to a peak voltage of said prescribed pulse.

24. (Previously Presented) The plasma display apparatus as claimed in claim 22, wherein said second voltage is higher than a peak voltage of said prescribed pulse.

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25. (Previously Presented) The plasma display apparatus as claimed in claim 21, 22, 23, or 24, wherein said initialization period includes a set-down period in which said initialing pulse changes to a fourth voltage after said initialing pulse has changed a third voltage, wherein said fourth voltage is lower than said third voltage.

26. (Previously Presented) The plasma display apparatus as claimed in claim 25, wherein said third voltage is substantially equal to a peak voltage of said prescribed pulse.

27. (Previously Presented) The plasma display apparatus as claimed in claim 21, wherein a peak voltage of said prescribed pulse is substantially equal to a peak voltage of said sustaining pulse.

28. (Currently Amended) The plasma display apparatus as claimed in claim 21, wherein a peak voltage of said ~~control~~-prescribed pulse is higher than a scan reference voltage provided to the scan electrode.

29. (Previously Presented) The plasma display apparatus as claimed in claim 21, wherein said initialing pulse is longer than said prescribed pulse.

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30. (Previously Presented) The plasma display apparatus as claimed in claim 21, wherein a ground voltage is applied to said scan electrode before said prescribed pulse is applied.

31. (Previously Presented) The plasma display apparatus as claimed in claim 21, wherein a voltage provided to said scan electrode before said prescribed pulse is substantially equal to a voltage which is applied just before said initialing pulse.

32. (Previously Presented) The plasma display apparatus as claimed in claim 21, wherein a voltage of said scanning pulse is lower than a voltage which is applied just before said address period.

33. (Previously Presented) The plasma display apparatus as claimed in claim 21, wherein said prescribed pulse is provided at least two times between said initialing pulse and said scanning pulse.

34. (Currently Amended) The plasma display apparatus of claim 23, 24, ~~26~~, 27, or 28, wherein the peak voltage is provided for a prescribed time period.

35. (Previously Presented) The plasma display apparatus of claim 21, wherein the at least one prescribed pulse is provided during a prescribed period between the initialization period and the address period.

36. (Previously Presented) The plasma display apparatus of claim 21, wherein the first sustaining pulse and the second sustaining pulse are alternately applied to the scan electrode and the sustain electrode, respectively, during the sustain period, wherein the first and second sustaining pulses have substantially the same peak voltage.

37. (Currently Amended) The plasma display apparatus of claim 35, wherein the initialization period, the prescribed period, the address period and sustain period ~~is~~are provided in at least one sub-field of a frame.

38. (Previously Presented) The plasma display apparatus of claim 21, wherein each of the scan and sustain electrode includes at least a strip of transparent material, and a bus electrode of a narrower width than the strip formed on the transparent material.

39. (Previously Presented) The plasma display apparatus of claim 38, wherein a phosphorous material is provided within the cell.

40. (Previously Presented) The plasma display apparatus of claim 21, wherein at least one data pulse is provided to the address electrode during the address period.

41. (Previously Presented) The plasma display apparatus of claim 21, wherein at least one of the initializing pulse, scanning pulse, first sustaining pulse, second sustaining pulse or prescribed pulse causes at least one discharge in the cell.

42. (Previously Presented) The plasma display apparatus of claim 37, wherein the at least one sub-field includes eight sub-fields.

43. (Previously Presented) The plasma display apparatus of claim 37, wherein a cumulative length of time of the initialization period, prescribed period and the address period is the same for every sub-field of the frame.

44. (Previously Presented) The plasma display apparatus of claim 43, wherein the sustain period is different for every sub-field of the frame.

45. (Currently Amended) A plasma display apparatus comprising:
- a scan electrode and a sustain electrode formed on a first substrate;
 - an address electrode formed on a second substrate;
 - a plurality of barrier ribs provided between the first and second substrate; and
 - a cell being defined by the scan, sustain and address electrodes, and the plurality of barrier ribs,
- wherein the plasma display apparatus is configured to provide at least one signal to at least one of the scan electrode, the sustain electrode or the address electrode, and the at least one signal includes
- an initialing pulse, which is provided to said scan electrode during an initialization period,
 - a scanning pulse, which is provided to said scan electrode during an address period,
 - a first sustaining pulse, which is provided to said scan electrode during a sustain period, and
 - a second sustaining pulse, which is provided to said sustain electrode during the sustain period; and, wherein

at least one prescribed pulse of a prescribed waveform shape, ~~which is~~
provided to said scan electrode ~~between~~ after said initialing pulse and before said scanning pulse,
wherein

a peak voltage value of said prescribed pulse is substantially equal to a peak
voltage value of said sustaining pulse,

said initialing pulse is longer than said prescribed pulse, and

a voltage of said scanning pulse is lower than a voltage which is applied just before
said address period.

46. (Currently Amended) A plasma display apparatus comprising:

a scan electrode and a sustain electrode formed on a first substrate;

an address electrode formed on a second substrate;

a plurality of barrier ribs provided between the first and second substrate; and

a cell being defined by the scan, sustain and address electrodes, and the plurality of
barrier ribs,

wherein the plasma display apparatus is configured to provide at least one signal to
at least one of the scan electrode, the sustain electrode or the address electrode, and the at least
one signal includes

an initialing pulse, which is provided to said scan electrode during an initialization period,

a scanning pulse, which is provided to said scan electrode during an address period,

a first sustaining pulse, which is provided to said scan electrode during a sustain period, and

a second sustaining pulse, which is provided to said sustain electrode during the sustain period; ~~and, wherein~~

at least one prescribed pulse of a prescribed waveform shape, ~~which is~~ provided to said scan electrode ~~between~~ after said initialing pulse and before said scanning pulse, wherein

said initialization period includes a set-up period in which said initialing pulse changes to a second voltage after said initialing pulse has changed to a first voltage, said second voltage being higher than said first voltage,

said initialization period includes a set-down period in which said initialing pulse changes to a fourth voltage after said initialing pulse has changed a third voltage, said fourth voltage being lower than said third voltage, and

said initialing pulse is longer than said prescribed pulse.

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Claims 47–52. (Canceled).

53. (New) The plasma display apparatus as claimed in claim 45, wherein said initialization period includes a set-up period in which said initialing pulse changes to a second voltage after said initialing pulse has changed to a first voltage, wherein said second voltage is higher than said first voltage.

54. (New) The plasma display apparatus as claimed in claim 53, wherein said first voltage is substantially equal to a peak voltage of said prescribed pulse.

55. (New) The plasma display apparatus as claimed in claim 53, wherein said second voltage is higher than a peak voltage of said prescribed pulse.

56. (New) The plasma display apparatus as claimed in claim 45, 53, 54, or 55, wherein said initialization period includes a set-down period in which said initialing pulse changes to a fourth voltage after said initialing pulse has changed a third voltage, wherein said fourth voltage is lower than said third voltage.

57. (New) The plasma display apparatus as claimed in claim 56, wherein said third voltage is substantially equal to a peak voltage of said prescribed pulse.

58. (New) The plasma display apparatus as claimed in claim 45, wherein a peak voltage of said prescribed pulse is higher than a scan reference voltage provided to the scan electrode.

59. (New) The plasma display apparatus as claimed in claim 45, wherein a ground voltage is applied to said scan electrode before said prescribed pulse is applied.

60. (New) The plasma display apparatus as claimed in claim 45, wherein a voltage provided to said scan electrode before said prescribed pulse is substantially equal to a voltage which is applied just before said initialing pulse.

61. (New) The plasma display apparatus as claimed in claim 45, wherein said prescribed pulse is provided at least two times between said initialing pulse and said scanning pulse.

62. (New) The plasma display apparatus of claim 54, 55, or 58, wherein the peak voltage is provided for a prescribed time period.

63. (New) The plasma display apparatus of claim 45, wherein the at least one prescribed pulse is provided during a prescribed period between the initialization period and the address period.

64. (New) The plasma display apparatus of claim 45, wherein the first sustaining pulse and the second sustaining pulse are alternately applied to the scan electrode and the sustain electrode, respectively, during the sustain period, wherein the first and second sustaining pulses have substantially the same peak voltage.

65. (New) The plasma display apparatus of claim 63, wherein the initialization period, the prescribed period, the address period and sustain period are provided in at least one sub-field of a frame.

66. (New) The plasma display apparatus of claim 45, wherein each of the scan and sustain electrode includes at least a strip of transparent material, and a bus electrode of a narrower width than the strip formed on the transparent material.

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67. (New) The plasma display apparatus of claim 66, wherein a phosphorous material is provided within the cell.

68. (New) The plasma display apparatus of claim 45, wherein at least one data pulse is provided to the address electrode during the address period.

69. (New) The plasma display apparatus of claim 45, wherein at least one of the initializing pulse, scanning pulse, first sustaining pulse, second sustaining pulse or prescribed pulse causes at least one discharge in the cell.

70. (New) The plasma display apparatus of claim 65, wherein the at least one sub-field includes eight sub-fields.

71. (New) The plasma display apparatus of claim 65, wherein a cumulative length of time of the initialization period, prescribed period and the address period is the same for every sub-field of the frame.

72. (New) The plasma display apparatus of claim 71, wherein the sustain period is different for every sub-field of the frame.

73. (New) The plasma display apparatus as claimed in claim 46, wherein said first voltage is substantially equal to a peak voltage of said prescribed pulse.

74. (New) The plasma display apparatus as claimed in claim 46, wherein said second voltage is higher than a peak voltage of said prescribed pulse.

75. (New) The plasma display apparatus as claimed in claim 46, 73 or 74, wherein said third voltage is substantially equal to a peak voltage of said prescribed pulse.

76. (New) The plasma display apparatus as claimed in claim 46, wherein a peak voltage of said prescribed pulse is substantially equal to a peak voltage of said sustaining pulse.

77. (New) The plasma display apparatus as claimed in claim 46, wherein a peak voltage of said prescribed pulse is higher than a scan reference voltage provided to the scan electrode.

78. (New) The plasma display apparatus as claimed in claim 46, wherein a ground voltage is applied to said scan electrode before said prescribed pulse is applied.

79. (New) The plasma display apparatus as claimed in claim 46, wherein a voltage provided to said scan electrode before said prescribed pulse is substantially equal to a voltage which is applied just before said initialing pulse.

80. (New) The plasma display apparatus as claimed in claim 46, wherein a voltage of said scanning pulse is lower than a voltage which is applied just before said address period.

81. (New) The plasma display apparatus as claimed in claim 46, wherein said prescribed pulse is provided at least two times between said initialing pulse and said scanning pulse.

82. (New) The plasma display apparatus of claim 73, 74, 76, or 77, wherein the peak voltage is provided for a prescribed time period.

83. (New) The plasma display apparatus of claim 46, wherein the at least one prescribed pulse is provided during a prescribed period between the initialization period and the address period.

84. (New) The plasma display apparatus of claim 46, wherein the first sustaining pulse and the second sustaining pulse are alternately applied to the scan electrode and the sustain electrode, respectively, during the sustain period, wherein the first and second sustaining pulses have substantially the same peak voltage.

85. (New) The plasma display apparatus of claim 83, wherein the initialization period, the prescribed period, the address period and sustain period are provided in at least one sub-field of a frame.

86. (New) The plasma display apparatus of claim 46, wherein each of the scan and sustain electrode includes at least a strip of transparent material, and a bus electrode of a narrower width than the strip formed on the transparent material.

87. (New) The plasma display apparatus of claim 86, wherein a phosphorous material is provided within the cell.

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88. (New) The plasma display apparatus of claim 46, wherein at least one data pulse is provided to the address electrode during the address period.

89. (New) The plasma display apparatus of claim 46, wherein at least one of the initializing pulse, scanning pulse, first sustaining pulse, second sustaining pulse or prescribed pulse causes at least one discharge in the cell.

90. (New) The plasma display apparatus of claim 85, wherein the at least one sub-field includes eight sub-fields.

91. (New) The plasma display apparatus of claim 85, wherein a cumulative length of time of the initialization period, prescribed period and the address period is the same for every sub-field of the frame.

92. (New) The plasma display apparatus of claim 91, wherein the sustain period is different for every sub-field of the frame.